

LANDFIRE Biophysical Setting Model

Biophysical Setting 0911660

Middle Rocky Mountain Montane Douglas-fir Forest and Woodland

☐ This BPS is lumped with:

☐ This BPS is split into multiple models:

General Information

Contributors (also see the Comments field)

Date 11/18/2005

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Vegetation Type

Forest and Woodland

Dominant Species

PSME

PICO

PIFL

CARU

CAGE

BERE

PHMA5

Map Zone

9

Model Zone

☐ Alaska

☐ California

☐ Great Basin

☐ Great Lakes

☐ Hawaii

☐ Northeast

☐ Northern Plains

☐ N-Cent. Rockies

☒ Pacific Northwest

☐ South Central

☐ Southeast

☐ S. Appalachians

☐ Southwest

General Model Sources

☒ Literature

☐ Local Data

☒ Expert Estimate

Geographic Range

This BpS occurs in the southeast and eastern portions of MZs 10 and 19 (eastern Salmon River mountains, Pioneer mountains and Soldier mountains, Helena NF). Pockets of this type may occur sporadically west into eastern OR.

Biophysical Site Description

The xeric Douglas-fir type primarily exists on lower foothills immediately above grasslands/shrublands in elevation. Upper elevations border on dry subalpine fir. Slopes range from gentle to steep.

Vegetation Description

Generally dominated by Douglas-fir with an understory of graminoides and sparse shrubs. Stands are typically open and dominated by moderate to large diameter Douglas-fir. Limber pine may be present. Lodgepole pine can co-dominate in cooler portions of the mapping zones.

Disturbance Description

Fire regime is predominantly mixed with a MFI of approximately 35-50yrs (Crane and Fischer 1986, Bradley et al. (1992) . Mixed-severity fires occur with a typical frequency of 30-50yrs primarily in dense stands (classes B and E).

Adjacency or Identification Concerns

This BpS corresponds with cool, dry Douglas-fir and limber pine habitat types (Pfister et al. 1977; Steele et al. 1981), including PSME/CAGE, PSME/FEID, PSME/SYOR, PSME/ARCO, PSME/JUCO, PIFL/FEID/FEID phase and PIFL/JUCO.

**Fire Regime Groups are: I: 0-35 year frequency, surface severity; II: 0-35 year frequency, replacement severity; III: 35-100+ year frequency, mixed severity; IV: 35-100+ year frequency, replacement severity; V: 200+ year frequency, replacement severity.

This type often forms an ecotone with mountain grasslands/sagebrush. Class A in this model is equivalent with a class A in neighboring grassland/shrubland types. Higher elevations of this type border dry subalpine fir systems and persistent lodgepole pine in frost pockets and cooler areas of the map zone.

Douglas-fir increases in canopy density in the absence of fire disturbance. Much of this landscape today has canopy cover denser than the historic range of variability.

Native Uncharacteristic Conditions

Canopy closure of >90% in this BpS is considered uncharacteristic.

Scale Description

Since this type is dominated by mixed fires, patches tend to be smaller in size due to limited fuel. Fire sizes are generally variable. Analysis areas of several thousand acres would probably be adequate.

Issues/Problems

Comments

Additional reviewer was Susan Miller (smiller03@fs.fed.us).

This BpS was adapted from Rapid Assessment model ROPSMEdy, by Jeff Jones and reviewed by Steve Barrett and Cathy Stewart. J Foster imported 1166 from MZ10 into MZs 8 and 9 with modifications only to the Geographic Range.

Review comments incorporated on 3/16/2005, resulting in clarification in description, slightly more surface fires and higher MFI overall.

Vegetation Classes

Class A 20 %

Early Development 1 All Structure

Upper Layer Lifeform

☐ Herbaceous

☐ Shrub

☒ Tree

Fuel Model

Indicator Species and Canopy Position

PSME

Upper

PICO

Upper

PIFL

Upper

CARU

Lower

Structure Data (for upper layer lifeform)

	Min	Max
Cover	0 %	90 %
Height	Tree 0m	Tree 5m
Tree Size Class	Sapling >4.5ft; <5"DBH	

☒ Upper layer lifeform differs from dominant lifeform.

Graminoids are the dominant lifeform in this class.

Description

Dominated by graminoids and seedling and sapling sized Douglas-fir, lodgepole pine and/or limber pine. Understory may be dominated by Calamagrostis rubescens and Carex geophila.

**Fire Regime Groups are: I: 0-35 year frequency, surface severity; II: 0-35 year frequency, replacement severity; III: 35-100+ year frequency, mixed severity; IV: 35-100+ year frequency, replacement severity; V: 200+ year frequency, replacement severity.

Class B 15 %

Mid Development 1 Closed

Upper Layer Lifeform☐ Herbaceous☐ Shrub☒ Tree **Fuel Model****Indicator Species and Canopy Position**

PSME

Upper

PICO

Upper

PIFL

Lower

CARU

Lower

Structure Data (for upper layer lifeform)

	Min	Max
Cover	41 %	90 %
Height	Tree 5.1m	Tree 10m
Tree Size Class	Medium 9-21"DBH	

☐ Upper layer lifeform differs from dominant lifeform.**Description**

Relatively dense pole and medium sized Douglas-fir or lodgepole pine. The understory is open and relatively depauperate. Mixed severity fire may open up the canopy. Understory may be dominated by Calamagrostis rubescens and Carex geophila.

Class C 30 %

Mid Development 1 Open

Upper Layer Lifeform☐ Herbaceous☐ Shrub☒ Tree **Fuel Model****Indicator Species and Canopy Position**

PSME

Upper

PICO

Upper

PIFL

Upper

CARU

Lower

Structure Data (for upper layer lifeform)

	Min	Max
Cover	21 %	40 %
Height	Tree 5.1m	Tree 10m
Tree Size Class	Medium 9-21"DBH	

☐ Upper layer lifeform differs from dominant lifeform.**Description**

Open poles and medium sized Douglas-fir, lodgepole pine or limber pine with patchy graminoid cover and dispersed shrubs. Understory may be dominated by Calamagrostis rubescens and Carex geophila.

Class D 20 %

Late Development 1 Open

Upper Layer Lifeform☐ Herbaceous☐ Shrub☒ Tree **Fuel Model****Indicator Species and Canopy Position**

PSME

Upper

PICO

Upper

PIFL

Upper

CARU

Lower

Structure Data (for upper layer lifeform)

	Min	Max
Cover	21 %	40 %
Height	Tree 10.1m	Tree 25m
Tree Size Class	Very Large >33"DBH	

☐ Upper layer lifeform differs from dominant lifeform.**Description**

Open canopy of medium-large sized lodgepole pine and/or limber pine and large to very large Douglas-fir and/or limber pine with a graminoid and sparse shrub understory. Understory may be dominated by Calamagrostis rubescens and Carex geophila.

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Class E 15 %

Late Development 1 Closed

Upper Layer Lifeform☐ Herbaceous☐ Shrub☒ Tree**Fuel Model****Indicator Species and Canopy Position**

PSME

Upper

PICO

Upper

PIFL

Upper

CARU

Lower

Structure Data (for upper layer lifeform)

	Min	Max
Cover	41 %	90 %
Height	Tree 10.1m	Tree 25m
Tree Size Class	Very Large >33"DBH	

☐ Upper layer lifeform differs from dominant lifeform.**Description**

Multi-storied Douglas-fir, sometimes with lodgepole pine and limber pine present. Mixed severity fire may open up the canopy. Sparse understory dominated by Calamagrostis rubescens and Carex geophila.

Disturbances**Fire Regime Group**:** I**Historical Fire Size (acres)**

Avg 0

Min 0

Max 0

Sources of Fire Regime Data☒ Literature☐ Local Data☒ Expert Estimate**Additional Disturbances Modeled**☒ Insects/Disease☐ Native Grazing☐ Other (optional 1)☒ Wind/Weather/Stress☐ Competition☐ Other (optional 2)**Fire Intervals**

	Avg FI	Min FI	Max FI	Probability	Percent of All Fires
Replacement	75	20	130	0.01333	42
Mixed	55	50	700	0.01818	57
Surface	2500			0.0004	1
All Fires	31			0.03192	

Fire Intervals (FI):

Fire interval is expressed in years for each fire severity class and for all types of fire combined (All Fires). Average FI is central tendency modeled. Minimum and maximum show the relative range of fire intervals, if known. Probability is the inverse of fire interval in years and is used in reference condition modeling. Percent of all fires is the percent of all fires in that severity class.

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